by which, after the careful separation of the structures from above, the *uterus and vagina* are removed *en masse* from below (Fig. 2777).

The plan of the operation now is: To scrape away the broken-down carcinoma tissue, preferably several days

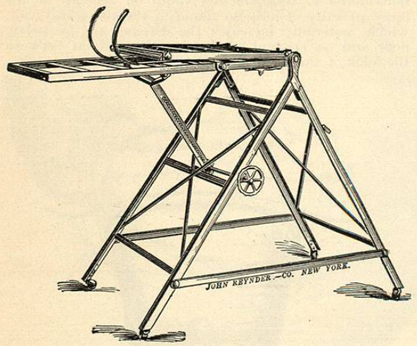

FIG. 2778.—Pryor's Table Arranged for Vaginal Hysterectomy in the Lithotomy Position.

before the operation, the bleeding surface being seared over with the thermo-cautery. If desired, bougies can be passed into the ureters. The patient is then placed in the Trendelenburg position, the abdomen is opened, the ovarian arteries are secured, and the bladder is separated not only from the front of the uterus but from the broad ligament on either side as widely as possible, so as to get the

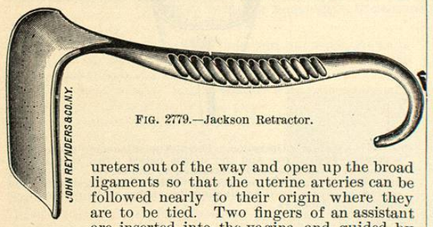

FIG. 2779.—Jackson Retractor.

ureters out of the way and open up the broad ligaments so that the uterine arteries can be followed nearly to their origin where they are to be tied. Two fingers of an assistant are inserted into the vagina, and guided by them the dissection is carried down in front between bladder and vagina to within an inch of the vulva. The uterosacral ligaments are divided with scissors, and the rectum is separated from the vagina to the same level. The lateral walls of the vagina are then freed, and lastly the bases of the broad ligaments are divided. This step is generally conceded to be the most difficult in the operation. The uterus and vagina, being now completely freed, are pushed down into the pelvic outlet, an assistant making strong traction on the cervix from below. The removal of the pelvic glands after slitting the peritoneum of the posterior pelvic wall to the point where the common iliac artery divides, and the stitching of the anterior and posterior peritoneal flaps so as to close off all raw surfaces from the peritoneal cavity, complete the abdominal part of the operation, and the abdominal incision is then closed. The patient is now placed in the lithotomy position and, guided by a finger in the rectum and a sound in the bladder, the surgeon amputates the inverted vagina with the knife or with a thermocautery and places a light gauze dressing in the space left in the vaginal vault.

TECHNIQUE OF KOLPO-HYSTERECTOMY.—The patient is prepared in every way as for the abdominal operation, so that in case of failure to secure hæmostasis, or of other complication, there need be no delay in opening the abdomen. A final scrubbing of the vulva and vagina is made with a one-per-cent. lysol solution by means of a long soft brush or piece of sterile gauze wound around the ends of two fingers. While the operation may be done on any ordinary table, it is very desirable to be able at any time to tilt the patient into the Trendelenburg position so as to free the pelvis from abdominal viscera. This is easily accomplished with the table shown in Fig. 2778, which

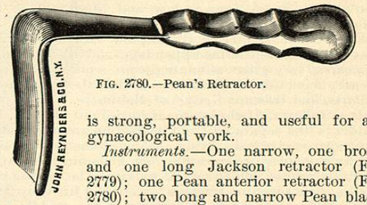

FIG. 2780.—Pean's Retractor.

is strong, portable, and useful for any gynæcological work.

Instruments.—One narrow, one broad, and one long Jackson retractor (Fig. 2779); one Pean anterior retractor (Fig. 2780); two long and narrow Pean blades (Fig. 2781); one Pryor trowel (Fig. 2782); one intra-uterine traction forceps; two strong bullet forceps; four traction forceps (Fig. 2783); Pryor's retracting director (Fig. 2784); two strong scalpels with good bellies; long, strong, sharp and blunt-pointed scissors, curved on the flat; eight pairs of Pryor's hysterectomy forceps (Fig. 2785); and other material as under *cœlio-hysterectomy*.

The most frequent and imperative indication for removal of the uterus per vaginam is the presence of bilateral suppurative disease of the appendages, and the clamp operation for this condition will be described first.

The steps of the operation are: The curetting of the uterine cavity; the opening of the posterior cul-de-sac; the incision in front of the cervix and separation of the bladder from the uterus; the hemisection of the uterus; the freeing of the appendages; the bringing down of first one and then the other half and its appendages, clamping its arteries and removing it; the dressing.

The patient is put in the lithotomy position with the coccyx well over the edge of the table. The uterus is curetted and irrigated; the instruments used are discarded and the hands washed. A posterior retractor is introduced, the cervix exposed and drawn forward with a pair of traction forceps or, better, with Pryor's intra-uterine traction forceps, and a transverse incision the width of the cervix made with knife or scissors at the point where the vaginal mucosa is reflected posteriorly from the cervix. This incision is kept close to the posterior surface of the uterus until the peritoneal cavity is opened, which is usually accomplished without much difficulty. The index fingers are then passed in and the opening is sufficiently enlarged by tearing. An exploring finger is passed through this opening and the condition of the appendages learned. A gauze pad with string attached is passed up to protect the intestines. The cervix is then

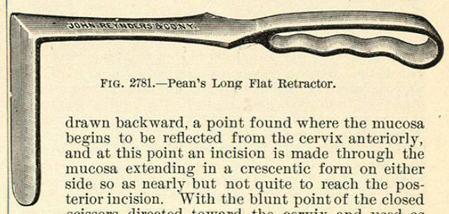

FIG. 2781.—Pean's Long Flat Retractor.

drawn backward, a point found where the mucosa begins to be reflected from the cervix anteriorly, and at this point an incision is made through the mucosa extending in a crescentic form on either side so as nearly but not quite to reach the posterior incision. With the blunt point of the closed scissors directed toward the cervix and used as one would a periosteal elevator the tissues are pushed up along the anterior surface of the uterus, aided after a little by the finger. This is done carefully and gently so as not to injure the bladder, and over a width of about two fingers, the fact being kept in mind that at the side

it is easy to tear into the arteries or lateral venous trunks. When some little separation has been obtained, a long anterior retractor, or trowel, is inserted beneath the bladder so as to lift it up out of the way, any restraining fibres

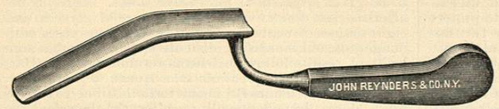

FIG. 2782.—Pryor's Trowel Anterior Retractor.

being snipped with scissors. The finger can sometimes be pushed up to the reflection of peritoneum from bladder to uterus and on through the tissues into the peritoneal cavity, or the peritoneum at this point may be opened with scissors. At other times it is not easy to reach as high as this.

The tissues having been separated anteriorly and posteriorly, the fundus can sometimes, when small and movable, be turned forward and brought through the anterior incision by taking higher and higher grasps with traction forceps, so that clamps or ligatures can be applied to the vessels of one side and after division with scissors between clamp and uterus the other side easily secured, but usually it is better first to divide the uterus in the middle line. This is accomplished by grasping the anterior lip of the cervix on either side with traction forceps, cutting upward through the anterior uterine wall in the middle line as far as convenient, taking a fresh grasp higher up on either side, cutting again, and repeating this until the fundus is reached. Then the broad-curved director is passed behind the cervix close

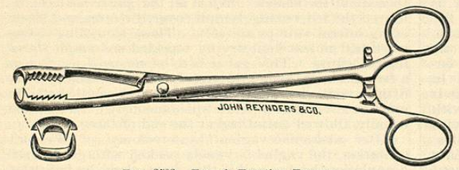

FIG. 2783.—French Traction Forceps.

along the posterior wall of the uterus, care being taken by a finger passed over the fundus that no folds of intestine are between it and the uterine body, and an assistant pressing the handle firmly backward against the perineum while the bladder is held up out of the way bythe trowel; the end of the director then appears above the fundus. With a strong bistoury the groove in the director is entered from above and the uterus split in the middle line. One half, usually that on the patient's right, is then dragged down with traction forceps while the other is pushed up by four fingers of the operator's right hand. These fingers, having been passed behind the dragged-down side, free the appendages by pushing and working from below upward and bring them out into the vagina. The half uterus and appendages being free, a long clamp forceps is passed from below upward over the broad ligament so as to clamp the uterine artery, and a second forceps from above downward to occlude the ovarian. The tips of the forceps should overlap a trifle but should be laterally a third or half inch apart so as not to tear the tissues when the upper forceps is turned down parallel with the lower. The half uterus and its appendages are then cut away, and finally the remaining side is freed, brought down, clamped, and cut away in the same manner.

It is to be noted that the first attempt at hæmostasis is made after the uterus has been divided and the appendages have been freed and brought down into the vagina. Occasionally a posterior vaginal artery will need immediate control, but usually the hemorrhage is not serious. If preferred, stout silk ligatures may be used in place of the clamp forceps, while some surgeons favor the angiotribe or Skene's electric clamp.

During the whole operation as few instruments as possible are to be in the vagina. Any premature attempt to use the clamps adds greatly to the difficulties. In applying the forceps to the uterine artery the cervix is to be drawn sharply to the opposite side so as to straighten the artery and increase the distance between the cervix and the point where the artery is in relation with the ureter.

Gauze pads secured by strings are now introduced

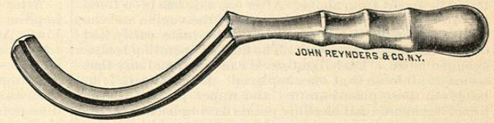

FIG. 2784.—Pryor's Retracting Director.

above the forceps, the perineum is retracted, and the bladder held up by a trowel. The head of the table is lowered and a careful inspection made of the stumps and pelvic contents. Any bleeding points are secured. The gauze pads are removed and the pelvis, especially the cul-de-sac, is carefully cleansed. A piece of iodoform gauze is inserted between the forceps and the vaginal wall on each side. Each set of forceps is then drawn toward the lateral pelvic wall by means of a long, narrow, flat retractor. Between them enough strips of folded gauze are inserted snugly to fill the space. These strips extend above the forceps and down to the vulva. As each strip is inserted it is pressed to one side by one of the long retractors, and this is done until the whole cavity is firmly packed from side to side. A self-retaining catheter is introduced; the sphincter ani is dilated, and the patient lowered to a horizontal position. As a final step, a piece of plain gauze is wrapped about the projecting ends of the forceps and tied. Pryor[11] considers this careful packing of the vagina a very essential portion of the operation, both as a means of securing efficient drainage and in preventing the retraction of the upper portion of the stump after the forceps has been removed.

In cases in which the uterus is small and movable or

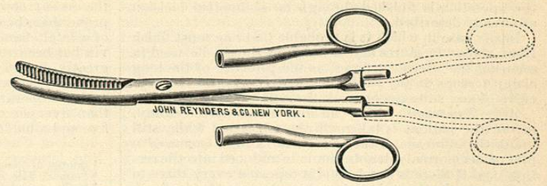

FIG. 2785.—Pryor's Hysterectomy Forceps with Removable Handles.

in which the presence of cancer of the fundus or sepsis makes the hemisection inadvisable, the procedure may be as follows: After it has been curetted, the cervix is to be closed by three or four stout silk sutures, the ends of which are left long, so as to be used as tractors. An incision is then made through the vaginal mucous membrane

entirely around the cervix and extending into the posterior cul-de-sac. Then, in order to secure the greatest amount of space, a longitudinal median incision is made for an inch or more toward the base of the bladder, and the bladder stripped away from vaginal wall and uterus. Gauze sponges with strings are now pushed up to protect the intestines and the appendages are freed by two fingers working upward through the posterior cul-de-sac. The uterus is then held only by the tissues of the broad ligaments. The cervix is drawn firmly down and toward the left, and the lateral vaginal wall held out of the way by a retractor. The left index finger is placed beneath the right broad ligament, and a stout silk ligature is passed about 1 cm. up and away from the cervix and securely tied. The included tissue is cut near the cervix with stout scissors and a second and third bite are taken and the tissues divided. The uterine arteries having been secured and divided, one may often, by pushing the cervix back, bring the fundus and appendages down into the vagina and then ligate the remainder of the right broad ligament from above. After one side has been freed the uterus comes down lower or out of the vagina and the remaining broad ligament may then be more easily tied off and the uterus removed. The field of operation is now sponged clean. Each ligature is examined and any that seems at all loose is at once replaced. Especial care is to be given those placed around the upper portion of the broad ligament. All bleeding points having been secured, the gauze sponges are removed, the anterior and posterior peritoneal folds are brought together by one or two points of suture, the ligature ends are gathered together in two bunches and cut just inside the vagina, and the cavity is packed moderately firmly with gauze. If clamps are used the packing is to be as already described. When the fundus cannot be inverted into the vagina the ligating and cutting may have to be done alternately on either side until a ligature can be passed over the top of the broad ligament.

Kolpo-coelio-hysterectomy, or combined hysterectomy, is accomplished by freeing the cervix from below and finishing the remaining steps of the operation from above. It is most strongly indicated in cases of cancer of the cervix when the body of the uterus is considerably enlarged, as by a complicating pregnancy or fibroids. In a case of this nature the breaking-down cancer tissue is removed with the curette, the raw surfaces are seared with the Paquelin cautery, the lips of the cervix are closed with sutures or, if the disease has spread too far to allow this, a piece of dry gauze is packed against it. The vagina is then carefully sponged clean and ringed by a knife cut at a level an inch or more below the level of the growth. The vaginal walls are carefully dissected off up to the level of the cervix, and their edges sewed closely together so as to retain the gauze and prevent if possible any subsequent infection of the peritoneal cavity. Any bleeding points in the vagina are secured by ligature and the vagina is lightly packed with gauze. The instruments and gloves used in this part of the operation are discarded and the operation is finished through an abdominal incision as already described.

In any case in which it is probable that one must finish from above, ligatures and not clamps should be used in securing the uterine arteries, as the presence of the long clamp forceps in the vagina markedly increases the difficulty of any subsequent work through the abdomen.

After-Treatment.—After an abdominal hysterectomy, before the patient is taken off the table, and while still under the influence of the anæsthetic, a high enema of a pint of decinormal salt solution is introduced into the rectum, and if there is shock this is repeated every three to six hours. Nothing is to be given by mouth for six or eight hours, and then hot water in half-ounce doses with ten drops of lemon juice added is allowed every hour. If the stomach will retain it, half-ounce doses of hot broth or hot milk may be given at hour intervals. If the case progresses favorably, it is not necessary to begin to move the bowels until at the end of forty-eight hours; but if there is evidence of intestinal distention, salines should be started as soon as twelve hours after the operation. Many good operators give calomel or a saline an hour before the beginning of the anæsthetic. Rubinat or Apenta water in half-ounce doses followed by a half ounce of cool water, or drachm doses of Rochelle salt are to be given every hour for twelve doses. Three hours after the last dose an enema of an ounce of glycerin and eight ounces of water is given. In desperate cases with dangerous and increasing distention the author has seen brilliant results follow the enema recommended by Hardon[12] of an ounce of alum in a quart of hot water. Strychnine is often useful in one-fortieth to one-twentieth grain doses hypodermically. After the bowels have moved freely and when there is no distention, the food is to be cautiously increased, and the patient gets the treatment employed after abdominal operations in general. She can usually be allowed to lie on the back or side, as she may prefer. The urine is to be passed naturally if possible, but often has to be drawn for a few days by catheter. The catheter should be used for four days when it has been necessary to drain through the vagina.

After the *vaginal clamp operation* the patient is usually kept on the back with the knees supported by a firm pillow. At the end of forty-eight hours the keys are applied to the lower forceps and the catch is separated a quarter of an inch. The keys are then removed and the forceps is rotated gently and slowly about ten degrees in either direction while very gentle traction is made. If the forceps does not come away readily no force must be used. If the gauze is adherent, it is to be separated from the forceps by a blunt, flat instrument. When all the forceps have been removed the patient is kept quiet on her back for six hours, and then is allowed to turn on the side if she wishes. On the eighth day she is put in the Sims position and the dressings are carefully removed and renewed. The instruments used are a long-bladed Sims speculum, Pryor's trowel, and a dressing forceps. The gauze strips in the centre are removed first so as to loosen those next the vessels. When all the gauze has been removed the red, oozing, lymph-covered rectum and blackening lateral stumps are seen. These sloughing tissues smell bad unless kept dry by repeated and ample dressings of gauze. This gauze is to be renewed as often as a free discharge comes through it, which is usually every fifth or sixth day. Sloughs are not to be pulled off but must be allowed to separate spontaneously. Patients are usually allowed out of bed at the end of three weeks.

After abdomino-vaginal hysterectomy, or Werder's operation, the vagina is loosely packed with gauze until granulation begins and is then kept clean by irrigation with warm boric-acid solution.

The *complications* peculiar to the operation, met with during and after abdominal or vaginal hysterectomies, are mainly due to injuries to ureters, bladder, or intestine. The main causes of death are hemorrhage or sepsis, leading to fatal exhaustion or general peritoneal inflammation with intestinal atony. The supravaginal operation undoubtedly gives the most satisfactory finished result, but the recent observations of Broun[13] and others seem to prove that the chances of a secondary infection, possibly of a fatal character, are slightly less when the entire cervix has been removed. The statistics of mortality vary greatly, but in general, in the hands of properly skilled operators, it varies between four and eight per cent. The author's operations have shown a mortality of a little less than five per cent. for the supravaginal operation and five and a half for the vaginal. *Brooks H. Wells.*

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HYSTERIA.—The disorder to which this name is given is evidenced by an almost innumerable variety of symptoms, which may be grouped in a general way into signs of increase, diminution, or perversion of the various nervous functions. In *hysteria major* convulsive and emotional seizures often occur with intervening signs called *stigmata*, especially including paralysis and anæsthesia, or the stigmata may appear alone. Hysteria is a psychosis. Post-mortem investigation gives no clew to the morbid process, and theoretical study of its nature has led, as yet, to little more than conjecture. The ancient view that a disordered uterus lay at the bottom of the trouble (whence the name, from ὑστέρα, uterus) has been long since discarded, and although the symptoms may be exaggerated, or even brought on, by disease of the uterus or its appendages, such disease is not an essential factor, the strongest proof of which lies in the fact that men, as well as women, suffer from hysteria. Whatever the exact nature of the disease, its seat must be regarded as the nervous system. It is generally considered that all parts of the nervous system—brain, spinal cord, peripheral nerves, and sympathetic—are implicated. The most marked symptoms are referable, however, to cerebral disturbance, and it seems justifiable to assume that the cortical structures are the principal sufferers from altered irritability. Most of the paralytic symptoms, for example, are best explained on the supposition of decreased irritability of the cortical centres, while the spasmodic symptoms allow of explanation in part on the ground of their exalted irritability, and in part on that of diminished inhibition. The psychical symptoms can, of course, be referable only to cerebral disorder.

Etiology.—Hysteria may exist as a primary neurosis, significant of degeneration, or it may be acquired. It appears commonly among females, but typical examples are found in the opposite sex. Briquet considered that fully half the women possess an impressionability differing little from hysteria. It is more frequent between the ages of ten and thirty, most frequent between fifteen and twenty, but may appear in infancy and also in advanced life. A most constant and important factor in the etiology is heredity, under which head must be included not only hysteria in the parent, but also other nervous and mental diseases. Extreme sensitiveness, irritability, emotional tendency, and allied traits in the parents indicate also a type of nervous organization in the family, which may lead to the development of hysteria in the individual. Other predisposing causes are, for example, ill-directed training, depressing influences, unhappy surroundings, desires ungratified, and all causes of continued anxiety and disquiet, especially if joined with excessive bodily fatigue. The advent of other disease may hasten the approach of hysteria, most frequently, perhaps, disease of the reproductive organs. Too much importance should not, however, be attached to coexisting disease of these organs; in many cases the coexistence is merely a coincidence, and in many the local symptoms are secondary to the general nervous disorder. The advent of menstruation and of the climacteric, as well as of pregnancy, may usher in the first signs. A mental or physical shock, a violent emotion or irritation, are common immediate and determining causes. Severe trauma, especially that resulting from falls blows, and railway collisions, is not an infrequent exciting cause. Many of the cases formerly classed under "railway spine" are now recognized as hysterical, and the former term has been largely replaced by traumatic neurosis, which includes traumatic hysteria. Predisposition is not essential, but in those cases in which the violence and duration of symptoms is out of all proportion to the violence of the trauma, the latter is probably only the excitant, not the fundamental, cause of the condition. In many of these cases the term "litigation neurosis" would be appropriate, inasmuch as the circumstances accompanying the suit for damages often play a greater part in the etiology than the original shock. While the disease is by no means confined to the upper class of society, it not infrequently appears there in young ladies whose comparatively aimless lives alternate between the excitement incident to balls, theatres, etc., and complete mental and physical idleness. This manner of life tends to the cultivation of the emotions and favors morbid introspection, while offering little opportunity for the exercise of will power. An irritability of the nervous system is thus produced which predisposes to hysteria.

Clinical History.—The disease in most cases is of so gradual growth that it is impossible to date its commencement. The patient inherits a neurotic tendency, which is fostered in childhood and youth by some of the predisposing causes already mentioned. It follows that, although the first decided symptoms, as paralysis or convulsions, may appear later in life, apparently on account of some trifling mental shock or bodily injury, the existence of the disease must date much farther back. Any or all the symptoms to be enumerated may appear in the given case, and in almost any order. In some cases the persistence of certain symptoms is a marked feature; in others the symptoms appear and disappear with great rapidity, without order in respect to locality or to sequence. The distinction between *hysteria major* and *hysteria minor* is largely one of degree, for both are characterized by exaltation and depression of nervous function with tendency to crises. In hysteria minor, however, the persistent symptoms do not extend beyond morbid sensitiveness, mental or physical, clavus, globus, backache, flushes and chills, while the crises are limited to emotional outbursts of moderate violence such as attacks of laughing and crying, followed by copious discharge of pale urine of low specific gravity. For convenience of description, the leading symptoms may be divided into disturbances of sensation, motion, circulation, secretion, and excretion, and of the mind.

Disturbances of Sensation.—Hyperæsthesia is one of the most constant symptoms of hysteria. When it is of a high degree the lightest touch causes signs of extreme distress, and even convulsive movements. When spread over a large surface the hyperæsthetic region is generally sharply bounded by lines which do not define the distribution of any particular nerves. These regions show no tendency to bilateral distribution, being often limited to one side of the body, and not infrequently bounded accurately by the median line. A common peculiarity of these tracts is to change their boundaries and situations, spreading gradually over one side of the body, disappearing in one place to appear in another, or passing from one side to the opposite. Circumscribed areas of anæsthesia, or of normal sensibility, may appear in the midst of an hyperæsthetic region. The sensitiveness is often limited to certain spots. Such spots are found most constantly over the vertebræ at varying heights, and on the scalp, but appear also on the neck, breast, abdomen, in the genital region, over the joints, and elsewhere. Hyperæsthesia of the larynx causes spasmodic coughing to be brought on by the least irritation, as the inhalation of cold air. The mucous membrane of the nasal, buccal, and faucial cavities, the conjunctiva, the meatus externus, and the tympanum may, any or all, be found hyperæsthetic, with exaggeration of the physiological reflexes. Spontaneous pains are common and may assume the character of superficial neuralgias, or appear to lie deeper, as in muscles, periosteum, or abdominal viscera. Hysterical patients are especially prone to headache and to the so-called clavus hystericus, a boring or burning sensation at or near the vertex, a symptom not more common in hysteria, however, than in neurasthenia and allied nervous states. An infinite variety of disagreeable, though not absolutely painful, sensations are complained of, often of the most vague and indescribable character, and again more or less typical, as the globus hystericus, and the sense of pressure in the epigastrium or over the chest, combined with a feeling of anxiety, or even the symptoms characteristic of angina pectoris. Sensitiveness and pain in the ovarian region (*ovarie*) are often found, generally on the left side. Pressure over this region sometimes produces a convulsive attack; and again, continued pressure is said to